

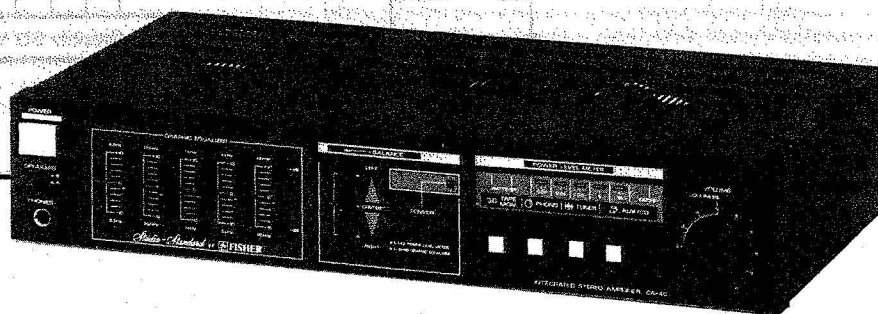
SERVICE MANUAL



FISHER

CA-40

**Integrated
Stereo Amplifier**
(EUROPE)

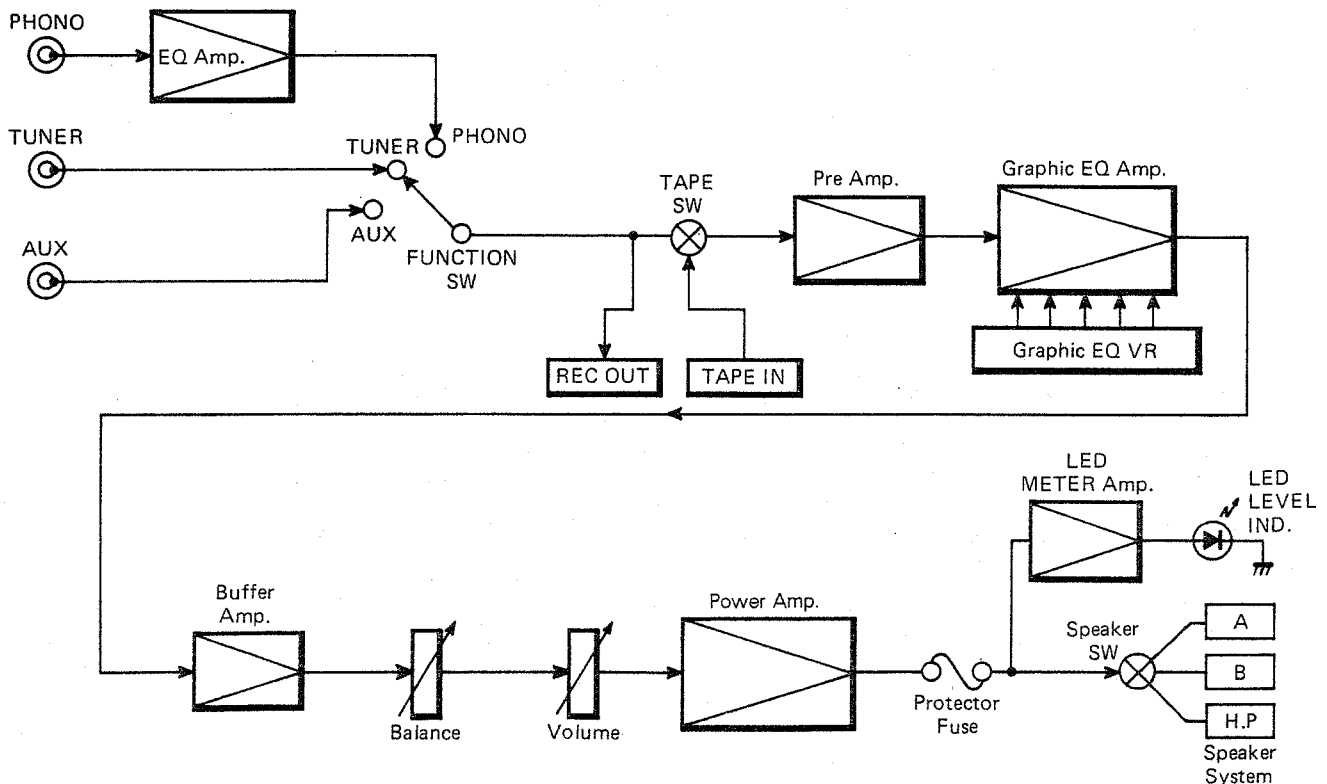


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FUNCTIONAL BLOCK DIAGRAM



SPECIFICATIONS

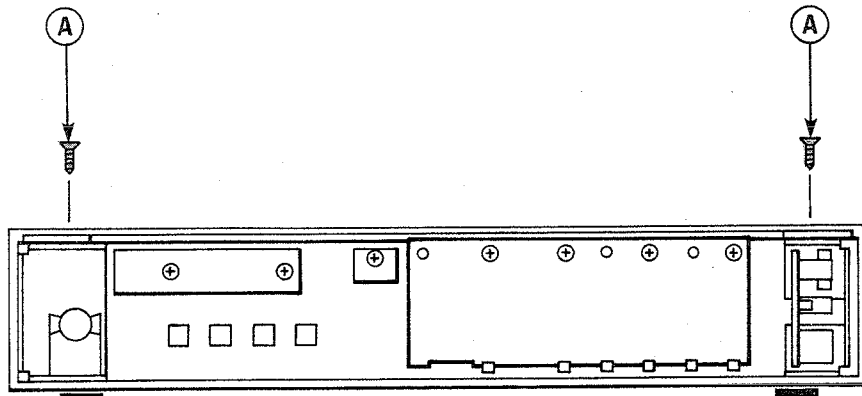
AMPLIFIER	CA-40
POWER AMPLIFIER SECTION Minimum RMS sine wave power per channel within stated bandwidth at no more than stated distortion and with 8-ohm load	30 Watts
Power Bandwidth	40 Hz – 20 kHz
Total Harmonic Distortion	0.5 %
I.M. Distortion	0.5 %
Speaker Damping	> 20
PREAMPLIFIER SECTION Frequency Response	
Phono (RIAA)	±0.5 dB
Aux (20 Hz – 20 kHz)	±0.5 dB
Input Sensitivity and Impedance	
Phono	2.5 mV/50 kΩ
Tape Monitor	150 mV/50 kΩ
Tuner/Auxiliary	150 mV/50 kΩ
Phono Max. Input Capability	150 mV
Graphic Equalizer	
63 Hz	±10 dB
250 Hz	±10 dB
1 kHz	±10 dB
4 kHz	±10 dB
16 kHz	±10 dB
Hum & Noise (IHF Short Circuit, A Network)	
Phono	70 dB
Tape Monitor	90 dB
Tuner/Auxiliary	90 dB
GENERAL	
Power Requirements (50 Hz)	220 V AC
Power Consumption	160 Watts
Power Supply Socket	2 (FM-60 CR-W34)
Dimensions (W x D x H)	400 x 215 x 80 mm
Weight (approx.)	3.6 kg

Because its products are subject to continuous improvement, Fisher Corporation reserves the right to modify product designs and specifications without notice and without incurring any obligation.

DISASSEMBLY INSTRUCTIONS

A. REMOVAL OF DECORATIVE PANEL

- Detach Cover by removing six screws.
- Pull out VOLUME knob.
- When Decorative Panel is removed from Chassis, the screw tightened through the Top and Bottom can be removed after the screw (A), as shown in Figs. 1 and 2, has been removed.

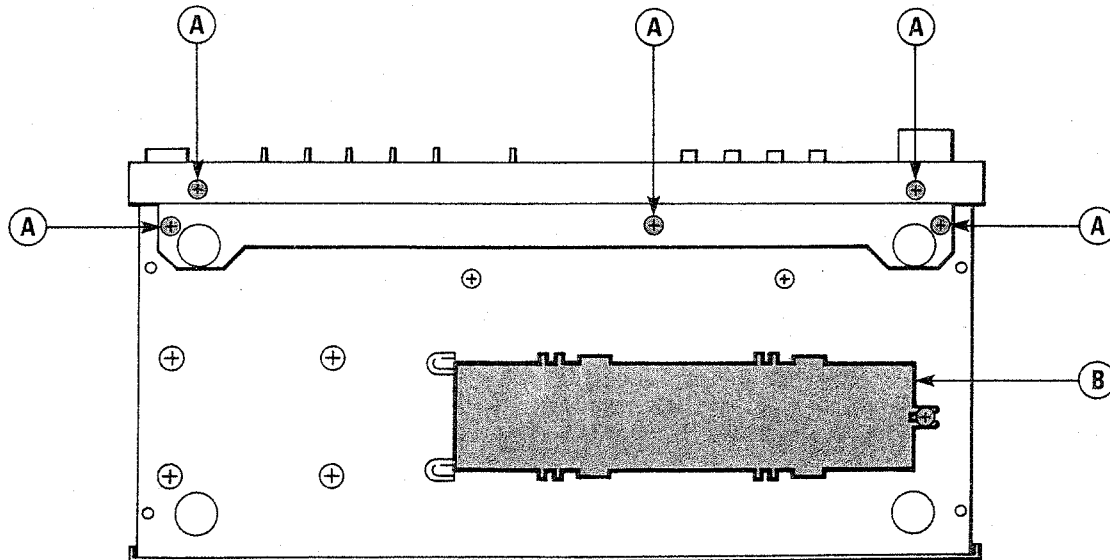


(FRONT PANEL REAR VIEW)

Fig. 1

B. REPAIR AND ADJUSTMENT OF PRINTED CIRCUIT BOARD

- The removal of Cabinet Bottom Plate (B), will give an access to the repair or adjustment work of Printed Circuit Board.



(BOTTOM VIEW)

Fig. 2

RECOMMENDED TEST EQUIPMENTS

The following test equipments are recommended to completely test and align the Amplifier:

- Line Voltage Isolation Transformer
- AC DC Multimeter
- Accurately Calibrated AC Voltmeter
- Oscilloscope (Flat to 100 kHz Minimum)
- Low-Distortion Audio Sine-Wave Generator
- Harmonic Distortion Analyzer
- Two (2) Load Resistors 8-ohms, 250 Watts (Minimum Rating)

HARMONIC DISTORTION TEST

CAUTION: Limit the following tests to no more than ten minutes each. Use 8-ohm resistors, with a minimum power rating of 250 watts when connecting a load across the SPEAKERS terminal.

CONTROL SETTINGS:

Unplug the AC power cord and set the front panel controls as follows:

- GRAPHIC EQUALIZER and BALANCE controls to center positions.
- POWER switch to OFF
- SPEAKERS switch to SYSTEM-B
- FUNCTION switch to AUX
- TAPE MONITOR switch to SOURCE
- VOLUME control to MINIMUM position
- LEFT CHANNEL DRIVEN

ONE CHANNEL DRIVEN:

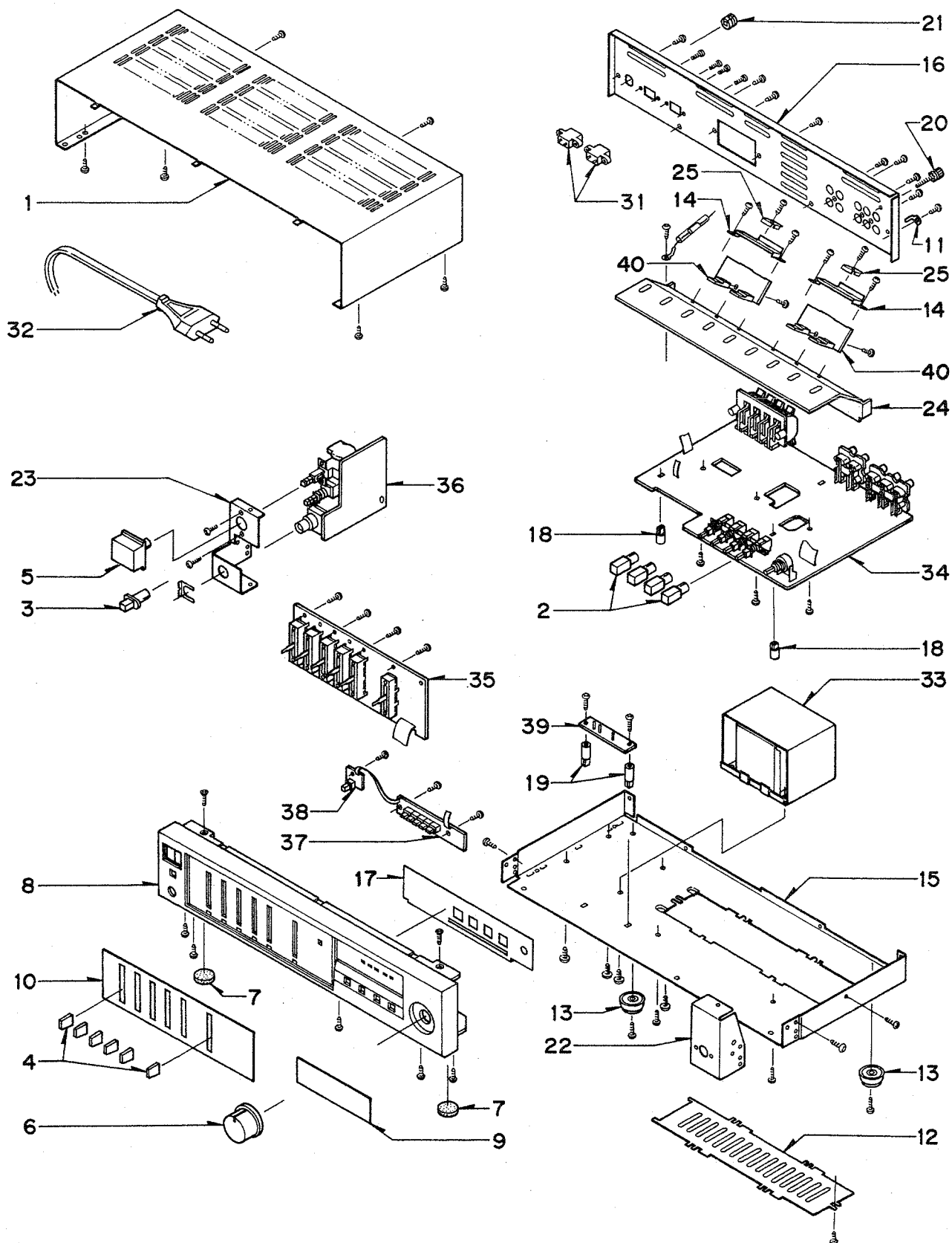
- 1) Connect a low distortion audio generator to LEFT AUX IN jack. Set generator frequency to 1 kHz and output to minimum.
- 2) Connect an 8-ohm load resistor between SPEAKERS SYSTEM-A LEFT and COM terminals. Connect a Harmonic Distortion Analyzer and an AC VTVM in parallel across the 8-ohm load.
- 3) Connect the AC power cord and set SPEAKERS switch to SYSTEM-A. Turn VOLUME control to MAX.
- 4) Increase generator output for 30 Watts RMS (15.5 volts across the 8-ohm load). Harmonic Distortion Analyzer should measure 0.5 % distortion or less.
- 5) Repeat steps 1 through 4 for RIGHT CHANNEL.

BOTH CHANNELS DRIVEN

Connect 8-ohm load resistors across LEFT and RIGHT SPEAKERS SYSTEM-A terminals. Adjust generator output and "BALANCE" control for 30 watts at Left and Right Channels (15.5 volts across the 8-ohm loads). Harmonic Distortion Analyzer should measure 0.5 % distortion or less at each channel.

CAUTION: This precision high-fidelity instrument should be serviced only by qualified personnel, trained in the repair of transistor equipment and printed circuitry.
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CABINET & CHASSIS EXPLODED VIEW



PARTS LIST

Ref. No.	Part No.	Description	Q'ty	Ref. No.	Part No.	Description	Q'ty
PACKING PARTS LIST				14	131-2-3101-97900	Metal Mount Transistor	2
	3-9415-10300	Bag Polyethylene	1	15	131-2-3301-28900	Chassis	1
	131-6-1169-03143	Box Corrugate-Exp.	1	16	131-2-3306-37452	Panel Rear	1
	131-6-2119-02130	Bag Polyethylene-Exp.	1	17	141-2-3229-46100	Plate Shield	1
	131-6-3009-33470	Pad	1	18	131-2-3614-20300	Mount P.C.B.	2
	131-6-3069-16840	Patching Sheet	1	19	131-2-3614-21800	Mount P.C.B.	2
	131-6-4559-10900	Manufacturing No.	2	20	131-2-4201-17800	Screw Ground	1
	131-6-9459-00300	Rubber Band	1	21	131-2-6111-14200	Bushing	1
	141-6-1449-88300	Pad (Left)	1	22	141-2-3519-66600	Metal Mount (Right)	1
	141-6-1449-88400	Pad (Right)	1	23	141-2-3519-66700	Metal Mount (Left)	1
				24	141-2-3689-12000	Plate Heat Sink	1
				25	131-2-3101-99000	Metal Mount	2
ACCESSORIES PARTS LIST				ELECTRICAL PARTS LIST			
	131-6-2719-10801	Bag Fan	1	31	△ 4-2359-74032	2P Socket (With/Nut)	2
	131-6-4519-15700	Guarantee Certificate	1	32	△ 4-2432-00150	Power Cord	1
	131-6-4559-10900	Manufacturing No.	1	33	△ 4-2512-22721	Power Trans	1
	142-6-4119-32507	Explanatory Booklet	1	34	141-0-1939-00675	Main P.C.B. Assy	1
CABINET & CHASSIS PARTS LIST				35	141-0-1939-00685	Graphic Equalizer P.C.B. Assy	1
1	131-2-1410-27411	Cover	1	36	141-0-1939-00695	Power Switch P.C.B. Assy	1
2	131-2-1601-64106	Knob (Function Switch)	4	37	141-0-1939-00704	Level Meter P.C.B. Assy	1
3	131-2-1601-69600	Knob (Speaker Select Switch)	1	38	141-0-1939-00710	Power Ind. P.C.B. Assy	1
4	131-2-1601-71001	Knob (Graphic EQ./Balance Volume)	6	39	141-0-1939-00720	Voltage Switch P.C.B. Assy	1
5	131-2-1601-86200	Knob (Power Switch)	1	40	141-0-1939-04570	Power Amp. P.C.B. Assy	2
6	131-2-1601-92100	Knob (Volume)	1				
7	131-2-1801-16200	Leg (Front Panel)	2	C01	CC4-7-3500-ZG00C	Ceramic 0.047μF 50V +80,-20%	1
8	141-2-1119-92712	Cabinet Front	1	C02	CC4-7-3500-ZG00C	Ceramic 0.047μF 50V +80,-20%	1
9	141-2-1449-56410	Plate Decorate	1	NOTES:			
10	141-2-1449-56505	Plate Decorate	1	1. Parts order must contain Model Number, Part Number and Description.			
11	4-2379-21520	Terminal Lug	1	2. Ordering quantity of screws and resistors must be multiple of 10 pcs.			
12	131-2-1410-27600	Cover	1				
13	131-2-1801-12900	Leg (Rear Panel)	2				

PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol  in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified with , use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

IMPORTANT NOTE

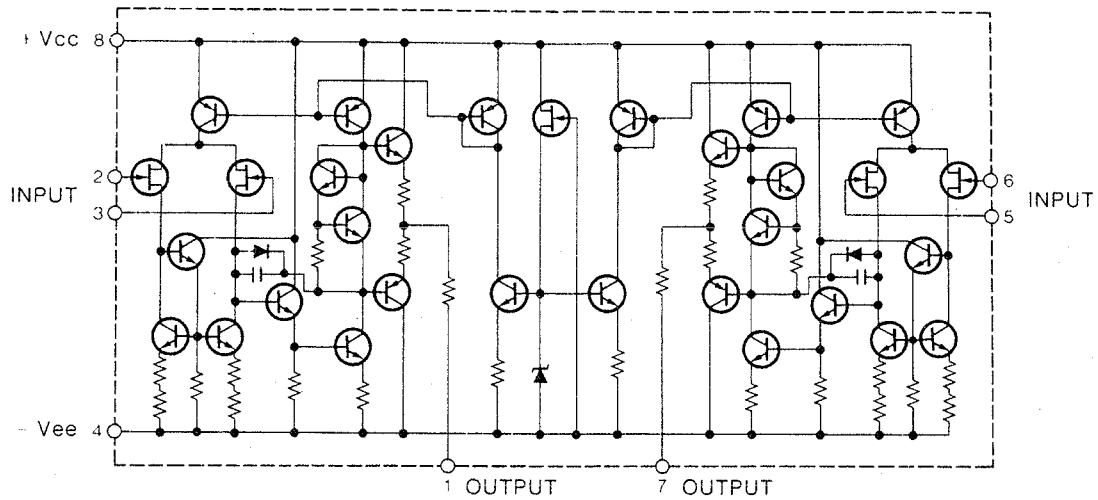
The amplifier has been factory-adjusted for operation on 220V AC. The voltage can be changed for operation on 110V AC by making the following changes on the amplifier inside.

- Remove the AC plug from the wall outlet.
- Remove the screws securing the cover.
- Disconnect gray lead from Voltage switch P.C.Board No.10 terminal, and then connect it to Power switch P.C.Board No.3 terminal.
- Disconnect black lead from Voltage switch P.C.Board No.11 terminal, and then connect it to No.10 terminal.

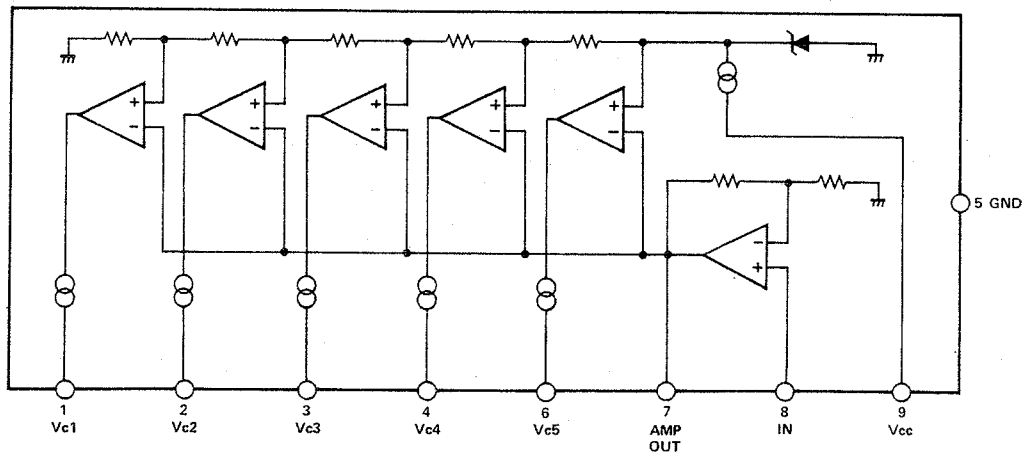
The amplifier is now ready 110V operation. DO NOT attempt to operate the amplifier on 220V. Damage will result !

IC EQUIVALENT CIRCUIT & BLOCK DIAGRAM

EQ AMP IC LA 6458 DS



L.E.D.LEVEL METER IC LB 1423



PARTS LIST

Ref. No.	Part No.	Description	Q'ty	Ref. No.	Part No.	Description	Q'ty
MAIN P.C.B. ASSY				C236	CC2-2-1500-KD00R	Ceramic 220pF 50V ±10%	1
L101	141-0-1939-00675	Main P.C.B. Assy	1	C237	CC2-2-1500-KD00R	Ceramic 220pF 50V ±10%	1
L201	4-2262-14940	Main P.C.B.	1	C238	CC2-2-1500-KD00R	Ceramic 220pF 50V ±10%	1
VR407	4-2319-76300	SW. Push 4Key (Aux/Tuner/Phono/Tape)	1	C239	CC2-2-1500-KD00R	Ceramic 220pF 50V ±10%	1
	△ 4-2349-20570	Fuse T 2.5A (Speaker Protector)	2	C240	CC2-2-1500-KD00R	Ceramic 220pF 50V ±10%	1
	△ 4-2349-20580	Fuse T 3.15A (AC Line)	2	C241	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
	4-2352-01700	Pin Jack 4P (Tape)	1	C242	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
	4-2352-01780	Pin Jack 6P (Phono/Aux/Tuner)	1	C243	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
	4-2532-00422	RF Coil	1	C246	CC2-2-1500-KD00R	Ceramic 220pF 50V ±10%	1
	4-2532-00422	RF Coil	1	C247	CC2-2-1500-KD00R	Ceramic 220pF 50V ±10%	1
	4-2229-74200	Volume B-100kΩx2 (Volume)	1	C248	CC1-0-2500-KE00C	Ceramic 0.001μF 50V ±10%	1
	4-2352-01940	Fuse Clip	8	C249	CC1-0-2500-KE00C	Ceramic 0.001μF 50V ±10%	1
	4-2372-01070	Terminal 8P (Speaker Terminal)	1	C301	CK4-7-3251-K000V	Ceramic 0.047μF 250V ±10%	1
	111-2-6220-11100	Wire Wrap Terminal	3	C302	CK4-7-3251-K000V	Ceramic 0.047μF 250V ±10%	1
	131-2-6201-29800	Heat Sink	1	C303	CK4-7-3251-K000V	Ceramic 0.047μF 250V ±10%	1
	141-2-3229-44600	Plate Shield	1	C304	CK4-7-3251-K000V	Ceramic 0.047μF 250V ±10%	1
				C305	CD2-2-8500-0005V	Electrolytic 2200μF 50V	1
				C306	CD2-2-8500-0005V	Electrolytic 2200μF 50V	1
				C307	CC4-7-3500-ZG00C	Ceramic 0.047μF 50V +80,-20%	1
				C308	CC4-7-3500-ZG00C	Ceramic 0.047μF 50V +80,-20%	1
				C309	CD1-0-5500-0001V	Electrolytic 1μF 50V	1
				C310	CD1-0-5500-0001V	Electrolytic 1μF 50V	1
				C313	CD4-7-6250-0001V	Electrolytic 47μF 25V	1
				C314	CD4-7-6250-0001V	Electrolytic 47μF 25V	1
				C315	CD4-7-6250-0001V	Electrolytic 47μF 25V	1
				C401	CD4-7-6250-0001V	Electrolytic 47μF 25V	1
				C404	CC4-7-3500-ZG00C	Ceramic 0.047μF 50V +80,-20%	1
				C405	CC4-7-3500-ZG00C	Ceramic 0.047μF 50V +80,-20%	1
				C406	CD1-0-7250-0001V	Electrolytic 100μF 25V	1
				SEMICONDUCTORS			
				D101	205-5-9020-43010	Diode, DS 430	1
				D102	202-5-3210-16012	Zener Diode, GZA 16V	1
				D201	205-5-9020-43010	Diode, DS 430	1
				D203	205-5-9040-44210	Diode, DS 442	1
				D204	205-5-9040-44210	Diode, DS 442	1
				D301	202-5-3210-16012	Zener Diode, GZA 16V	1
				D302	202-5-3210-16012	Zener Diode, GZA 16V	1
				D303	202-5-2620-03010	Bridge Diode, BA 30C	1
				D401	205-5-9040-44210	Diode, DS 442	1
				D402	205-5-9040-44210	Diode, DS 442	1
				D409	202-5-2470-13540	Diode, DS 135 D	1
				D410	202-5-3160-00110	Diode, GMA 01	1
				IC401	206-5-2726-45810	IC, LA 6458 DS	1
				Q106	203-5-5000-53660	Transistor, 2SC 536	1
				Q107	203-5-7230-60860	Transistor, 2SA 608	1
				Q108	203-5-5340-33250	FET, 2SK 332	1
				Q109	203-5-4551-01615	Transistor, 2SA 1016	1
				Q110	203-5-4532-36260	Transistor, 2SC 2362	1
				Q206	203-5-5000-53660	Transistor, 2SC 536	1
				Q207	203-5-7230-60860	Transistor, 2SA 608	1
				Q208	203-5-5340-33250	FET, 2SK 332	1
				Q209	203-5-4551-01615	Transistor, 2SA 1016	1
				Q210	203-5-4532-36260	Transistor, 2SC 2362	1
				Q301	203-5-7330-61251	Transistor, 2SD 612	1
				Q302	203-5-7230-60860	Transistor, 2SA 608	1
				Q401	203-5-7230-60860	Transistor, 2SA 608	1
				RESISTORS			
				R101	RD1-2-4161-JH000	Carbon 120kΩ 1/6W ±5%	1
				R102	RD1-0-4161-JH000	Carbon 100kΩ 1/6W ±5%	1
				R103	RD2-7-1161-JH000	Carbon 270Ω 1/6W ±5%	1
				R104	RD2-2-4161-JH000	Carbon 220kΩ 1/6W ±5%	1
				R105	RD1-5-3161-JH000	Carbon 15kΩ 1/6W ±5%	1

PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty	Ref. No.	Part No.	Description	Q'ty
R106	RD1-0-4161-JH000	Carbon 100kΩ 1/6W ±5%	1	GRAPHIC EQUALIZER P.C.B. ASSY			
R107	RD5-6-2251-JM000	Carbon 5.6kΩ 1/4W ±5%	1	141-0-1939-00685	Graphic Equalizer P.C.B. Assy		1
R134	RD3-3-3161-JH000	Carbon 33kΩ 1/6W ±5%	1	4-2262-14950	Graphic Equalizer P.C.B.		1
R135	RD1-5-4251-JM000	Carbon 150kΩ 1/4W ±5%	1	VR401	4-2222-03051	Slide Volume SW-250kΩx2 (63Hz)	1
R136	RD5-6-1251-JM000	Carbon 560Ω 1/4W ±5%	1	VR402	4-2222-03051	Slide Volume SW-250kΩx2 (250Hz)	1
R137	RD6-8-2251-JM000	Carbon 6.8kΩ 1/4W ±5%	1	VR403	4-2222-03051	Slide Volume SW-250kΩx2 (1kHz)	1
R138	RD5-6-1251-JM000	Carbon 560Ω 1/4W ±5%	1	VR404	4-2222-03051	Slide Volume SW-250kΩx2 (4kHz)	1
R139	RD6-8-2251-JM000	Carbon 6.8kΩ 1/4W ±5%	1	VR405	4-2222-03051	Slide Volume SW-250kΩx2 (16kHz)	1
R140	RD6-8-2161-JH000	Carbon 6.8kΩ 1/6W ±5%	1	VR406	4-2222-02820	Slide Volume G-200kΩx1 (Balance)	1
R141	RD1-0-1251-JM000	Carbon 100Ω 1/4W ±5%	1	CAPACITORS			
R142	RD6-8-3251-JM000	Carbon 68kΩ 1/4W ±5%	1	C107	CD1-0-5500-0001V	Electrolytic 1μF 50V	1
R144	RD2-2-3251-JM000	Carbon 22kΩ 1/4W ±5%	1	C108	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
R145	RD1-0-1251-JM000	Carbon 100Ω 1/4W ±5%	1	C109	CC1-0-0500-KD00C	Ceramic 10pF 50V ±10%	1
R146	RF1-0-1251-JK000	Fuse 100Ω 1/4W ±5%	1	C110	CD2-2-6250-0001V	Electrolytic 22μF 25V	1
R147	RF3-3-0251-JK000	Fuse 33Ω 1/4W ±5%	1	C112	CD2-2-5500-0001V	Electrolytic 2.2μF 50V	1
R148	RH1-0-0501-JZ000	Metal 10Ω 1/2W ±5%	1	C113	CM1-8-3500-K00SV	Mylar 0.018μF 50V ±10%	1
R149	RD1-0-1251-JM000	Carbon 100Ω 1/4W ±5%	1	C114	CD4-7-4500-0001V	Electrolytic 0.47μF 50V	1
R152	RD4-7-1161-JH000	Carbon 470Ω 1/6W ±5%	1	C115	CM8-2-2500-K00SV	Mylar 0.0082μF 50V ±10%	1
R154	RD1-0-3251-JM000	Carbon 10kΩ 1/4W ±5%	1	C116	CM8-2-3500-J00TV	Mylar 0.082μF 50V ±5%	1
R155	RD2-2-2161-JH000	Carbon 2.2kΩ 1/6W ±5%	1	C117	CM4-7-2500-K00SV	Mylar 0.0047μF 50V ±10%	1
R156	RD2-2-2161-JH000	Carbon 2.2kΩ 1/6W ±5%	1	C118	CM2-2-3500-K00SV	Mylar 0.022μF 50V ±10%	1
R158	RD2-2-2251-JM000	Carbon 2.2kΩ 1/4W ±5%	1	C119	CM1-5-2500-K00SV	Mylar 0.0015μF 50V ±10%	1
R159	RD1-5-3251-JM000	Carbon 15kΩ 1/4W ±5%	1	C120	CM4-7-2500-K00SV	Mylar 0.0047μF 50V ±10%	1
R201	RD1-2-4161-JH000	Carbon 120kΩ 1/6W ±5%	1	C121	CC6-8-1500-KE00C	Ceramic 680pF 50V ±10%	1
R202	RD1-0-4161-JH000	Carbon 100kΩ 1/6W ±5%	1	C144	CC2-2-1500-KD00R	Ceramic 220pF 50V ±10%	1
R203	RD2-7-1161-JH000	Carbon 270Ω 1/6W ±5%	1	C145	CC2-2-1500-KD00R	Ceramic 220pF 50V ±10%	1
R204	RD2-2-4161-JH000	Carbon 220kΩ 1/6W ±5%	1	C207	CD1-0-5500-0001V	Electrolytic 1μF 50V	1
R205	RD1-5-3161-JH000	Carbon 15kΩ 1/6W ±5%	1	C208	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
R206	RD1-0-4161-JH000	Carbon 100kΩ 1/6W ±5%	1	C209	CC1-0-0500-KD00C	Ceramic 10pF 50V ±10%	1
R207	RD5-6-2251-JM000	Carbon 5.6kΩ 1/4W ±5%	1	C210	CD2-2-6250-0001V	Electrolytic 22μF 25V	1
R234	RD3-3-3161-JH000	Carbon 33kΩ 1/6W ±5%	1	C212	CD2-2-5500-0001V	Electrolytic 2.2μF 50V	1
R235	RD1-5-4251-JM000	Carbon 150kΩ 1/4W ±5%	1	C213	CM1-8-3500-K00SV	Mylar 0.018μF 50V ±10%	1
R236	RD5-6-1251-JM000	Carbon 560Ω 1/4W ±5%	1	C214	CD4-7-4500-0001V	Electrolytic 0.47μF 50V	1
R237	RD6-8-2251-JM000	Carbon 6.8kΩ 1/4W ±5%	1	C215	CM8-2-2500-K00SV	Mylar 0.0082μF 50V ±10%	1
R238	RD5-6-1251-JM000	Carbon 560Ω 1/4W ±5%	1	C216	CM8-2-3500-J00TV	Mylar 0.082μF 50V ±5%	1
R239	RD6-8-2251-JM000	Carbon 6.8kΩ 1/4W ±5%	1	C217	CM4-7-2500-K00SV	Mylar 0.0047μF 50V ±10%	1
R240	RD6-8-2161-JH000	Carbon 6.8kΩ 1/6W ±5%	1	C218	CM2-2-3500-K00SV	Mylar 0.022μF 50V ±10%	1
R241	RD1-0-1251-JM000	Carbon 100Ω 1/4W ±5%	1	C219	CM1-5-2500-K00SV	Mylar 0.0015μF 50V ±10%	1
R242	RD6-8-3251-JM000	Carbon 68kΩ 1/4W ±5%	1	C220	CM4-7-2500-K00SV	Mylar 0.0047μF 50V ±10%	1
R243	RH1-0-2501-JZ000	Metal 1kΩ 1/2W ±5%	1	C221	CC6-8-1500-KE00C	Ceramic 680pF 50V ±10%	1
R245	RD1-0-1251-JM000	Carbon 100Ω 1/4W ±5%	1	C244	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
R246	RF1-0-1251-JK000	Fuse 100Ω 1/4W ±5%	1	C245	CC2-2-1500-KD00C	Ceramic 220pF 50V ±10%	1
R248	RH1-0-0501-JZ000	Metal 10Ω 1/2W ±5%	1	C311	CD4-7-6250-0001V	Electrolytic 47μF 25V	1
R249	RD1-0-1251-JM000	Carbon 100Ω 1/4W ±5%	1	C312	CD4-7-6250-0001V	Electrolytic 47μF 25V	1
R252	RD4-7-1161-JH000	Carbon 470Ω 1/6W ±5%	1	SEMICONDUCTORS			
R254	RD1-0-3251-JM000	Carbon 10kΩ 1/4W ±5%	1	IC402	206-5-2726-45810	IC, LA 6458 DS	1
R255	RD2-2-2161-JH000	Carbon 2.2kΩ 1/6W ±5%	1	Q101	203-5-5000-53660	Transistor, 2SC 536	1
R256	RD2-2-2161-JH000	Carbon 2.2kΩ 1/6W ±5%	1	Q102	203-5-5000-53660	Transistor, 2SC 536	1
R258	RD2-2-2251-JM000	Carbon 2.2kΩ 1/4W ±5%	1	Q103	203-5-5000-53660	Transistor, 2SC 536	1
R259	RD1-5-3251-JM000	Carbon 15kΩ 1/4W ±5%	1	Q104	203-5-5000-53660	Transistor, 2SC 536	1
R301	RF3-9-0501-JZ000	Fuse 39Ω 1/2W ±5%	1	Q105	203-5-5000-53660	Transistor, 2SC 536	1
R302	RF3-3-1251-JK000	Fuse 330Ω 1/4W ±5%	1	Q201	203-5-5000-53660	Transistor, 2SC 536	1
R303	RD1-0-2251-JM000	Carbon 1kΩ 1/4W ±5%	1	Q202	203-5-5000-53660	Transistor, 2SC 536	1
R304	RD1-0-2161-JH000	Carbon 1kΩ 1/6W ±5%	1	Q203	203-5-5000-53660	Transistor, 2SC 536	1
R401	RD2-7-3161-JH000	Carbon 27kΩ 1/6W ±5%	1	Q204	203-5-5000-53660	Transistor, 2SC 536	1
R402	RD1-0-2161-JH000	Carbon 1kΩ 1/6W ±5%	1	Q205	203-5-5000-53660	Transistor, 2SC 536	1
R403	RD3-3-3251-JM000	Carbon 33kΩ 1/4W ±5%	1	RESISTORS			
R407	RD1-0-3251-JM000	Carbon 10kΩ 1/4W ±5%	1	R108	RD1-2-4251-JM000	Carbon 120kΩ 1/4W ±5%	1
R408	RD1-0-1251-JM000	Carbon 100Ω 1/4W ±5%	1	R109	RD1-0-4251-JM000	Carbon 100kΩ 1/4W ±5%	1
R409	RD2-7-2251-JM000	Carbon 2.7kΩ 1/4W ±5%	1	R110	RD4-7-2161-JH000	Carbon 4.7kΩ 1/6W ±5%	1
				R111	RD1-0-4161-JH000	Carbon 100kΩ 1/6W ±5%	1

PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty	Ref. No.	Part No.	Description	Q'ty	
R112	RD4-7-2161-JH000	Carbon	4.7kΩ 1/6W ±5%	1	RESISTORS			
R114	RD3-9-1161-JH000	Carbon	390Ω 1/6W ±5%	1	R150	RH3-3-1501-JZ000 Metal	330Ω 1/2W ±5%	1
R113	RD3-3-2161-JH000	Carbon	3.3kΩ 1/6W ±5%	1	R151	RD1-8-1251-JM000 Carbon	180Ω 1/4W ±5%	1
R115	RD1-2-2161-JH000	Carbon	1.2kΩ 1/6W ±5%	1	R250	RH3-3-1501-JZ000 Metal	330Ω 1/2W ±5%	1
R116	RD1-5-4161-JH000	Carbon	150kΩ 1/6W ±5%	1	R251	RD1-8-1251-JM000 Carbon	180Ω 1/4W ±5%	1
R117	RD1-5-3161-JH000	Carbon	15kΩ 1/6W ±5%	1	LEVEL METER P.C.B. ASSY			
R118	RD3-9-1161-JH000	Carbon	390Ω 1/6W ±5%	1	141-0-1939-00704	Level Meter P.C.B. Assy		1
R119	RD1-2-2161-JH000	Carbon	1.2kΩ 1/6W ±5%	1	4-2262-14970	Level Meter P.C.B.		1
R120	RD1-0-4161-JH000	Carbon	100kΩ 1/6W ±5%	1	131-2-4208-41800	Spacer (L.E.D.)		5
R121	RD1-5-3161-JH000	Carbon	15kΩ 1/6W ±5%	1	CAPACITOR			
R122	RD3-9-1161-JH000	Carbon	390Ω 1/6W ±5%	1	C403	CD1-0-6250-0001V Electrolytic	10μF 25V	1
R123	RD1-5-2161-JH000	Carbon	1.5kΩ 1/6W ±5%	1	SEMICONDUCTORS			
R124	RD3-9-3161-JH000	Carbon	39kΩ 1/6W ±5%	1	D403	D00---SLP--173B- L.E.D., SLP 173 B		1
R125	RD1-5-3161-JH000	Carbon	15kΩ 1/6W ±5%	1	D404	D00---SLP--173B- L.E.D., SLP 173 B		1
R126	RD3-9-1161-JH000	Carbon	390Ω 1/6W ±5%	1	D405	D00---SLP--173B- L.E.D., SLP 173 B		1
R127	RD1-5-2161-JH000	Carbon	1.5kΩ 1/6W ±5%	1	D406	D00---SLP--173B- L.E.D., SLP 173 B		1
R128	RD3-3-3161-JH000	Carbon	33kΩ 1/6W ±5%	1	D407	D00---SLP--173B- L.E.D., SLP 173 B		1
R129	RD1-5-3161-JH000	Carbon	15kΩ 1/6W ±5%	1	IC404	206-5-2291-42310 IC, LB 1423 (L.E.D. Drive)		1
R130	RD3-9-1161-JH000	Carbon	390Ω 1/6W ±5%	1	RESISTORS			
R131	RD1-5-2161-JH000	Carbon	1.5kΩ 1/6W ±5%	1	R417	RD5-6-1161-JH000 Carbon	560Ω 1/6W ±5%	1
R132	RD2-2-3161-JH000	Carbon	22kΩ 1/6W ±5%	1	R418	RD1-0-3161-JH000 Carbon	10kΩ 1/6W ±5%	1
R133	RD1-5-3161-JH000	Carbon	15kΩ 1/6W ±5%	1	POWER IND. P.C.B. ASSY			
R157	RD2-2-2161-JH000	Carbon	2.2kΩ 1/6W ±5%	1	141-0-1939-00710	Power Ind. P.C.B. Assy		1
R208	RD1-2-4161-JH000	Carbon	120kΩ 1/6W ±5%	1	4-2262-14980	Power Ind. P.C.B.		1
R209	RD1-0-4161-JH000	Carbon	100kΩ 1/6W ±5%	1	131-2-4208-41300	Spacer (L.E.D.)		1
R210	RD4-7-2161-JH000	Carbon	4.7kΩ 1/6W ±5%	1	SEMICONDUCTOR			
R211	RD1-0-4161-JH000	Carbon	100kΩ 1/6W ±5%	1	D408	4-2029-72101 L.E.D., GL 9 PR		1
R212	RD4-7-2161-JH000	Carbon	4.7kΩ 1/6W ±5%	1	RESISTOR			
R213	RD3-3-2161-JH000	Carbon	3.3kΩ 1/6W ±5%	1	R419	RD1-8-2251-JM000 Carbon	1.8kΩ 1/4W ±5%	1
R214	RD3-9-1251-JM000	Carbon	390Ω 1/4W ±5%	1	VOLTAGE SWITCH P.C.B. ASSY			
R215	RD1-2-2161-JH000	Carbon	1.2kΩ 1/6W ±5%	1	141-0-1939-00720	Voltage Switch P.C.B. Assy		1
R216	RD1-5-4161-JH000	Carbon	150kΩ 1/6W ±5%	1	4-2262-14990	Voltage Switch P.C.B.		1
R217	RD1-5-3161-JH000	Carbon	15kΩ 1/6W ±5%	1	111-2-6220-11100	Wire Wrap Terminal		3
R218	RD3-9-1251-JM000	Carbon	390Ω 1/4W ±5%	1	POWER AMP. P.C.B. ASSY			
R219	RD1-2-2161-JH000	Carbon	1.2kΩ 1/6W ±5%	1	141-0-1939-04570	Power Amp. P.C.B. Assy		2
R220	RD1-0-4161-JH000	Carbon	100kΩ 1/6W ±5%	1	4-2262-18770	Power Amp. P.C.B.		2
R221	RD1-5-3161-JH000	Carbon	15kΩ 1/6W ±5%	1	4-2222-01490	Potentiometer B-500Ω		1
R222	RD3-9-1251-JM000	Carbon	390Ω 1/4W ±5%	1	VR01	4-2439-72390 Wire 5 Parallel		1
R223	RD1-5-2161-JH000	Carbon	1.5kΩ 1/6W ±5%	1	CAPACITORS			
R224	RD3-9-3161-JH000	Carbon	39kΩ 1/6W ±5%	1	C01	CH1-0-3250-MF00R Boundary	0.01μF 25V ±20%	1
R225	RD1-5-3161-JH000	Carbon	15kΩ 1/6W ±5%	1	C02	CH1-0-3250-MF00R Boundary	0.01μF 25V ±20%	1
R226	RD3-9-1251-JM000	Carbon	390Ω 1/4W ±5%	1	SEMICONDUCTORS			
R227	RD1-5-2161-JH000	Carbon	1.5kΩ 1/6W ±5%	1	Q01	203-5-5000-53670 Transistor, 2SC 536		1
R228	RD3-3-3161-JH000	Carbon	33kΩ 1/6W ±5%	1	Q02	203-5-7252-27451 Transistor, 2SC 2274		1
R229	RD1-5-3161-JH000	Carbon	15kΩ 1/6W ±5%	1	Q03	203-5-6820-98451 Transistor, 2SA 984		1
R230	RD3-9-1251-JM000	Carbon	390Ω 1/4W ±5%	1	Q04	4-2039-71571 Transistor, 2SD 1407		1
R231	RD1-5-2161-JH000	Carbon	1.5kΩ 1/6W ±5%	1	Q05	4-2039-71581 Transistor, 2SB 1016		1
R232	RD2-2-3161-JH000	Carbon	22kΩ 1/6W ±5%	1	POWER SWITCH P.C.B. ASSY			
R233	RD1-5-3161-JH000	Carbon	15kΩ 1/6W ±5%	1	141-0-1939-00695	Power Switch P.C.B. Assy		1
R257	RD2-2-2161-JH000	Carbon	2.2kΩ 1/6W ±5%	1	4-2262-14960	Power Switch P.C.B.		1
					Δ 4-2312-05710	Switch Push Power		1
					4-2312-05820	Switch Push 1 Key (Speaker Selector)		1
					4-2352-01170	Jack 7P (Headphone)		1
					4-2372-00830	EC Terminal 1P		2
					111-2-6220-11100	Wire Wrap Terminal		2
					131-2-6114-01400	Cover Safty		1
					CAPACITOR			
C316	Δ 4-2239-70970	Capacitor	0.01μF 400V	1				

PARTS LIST (Continued)

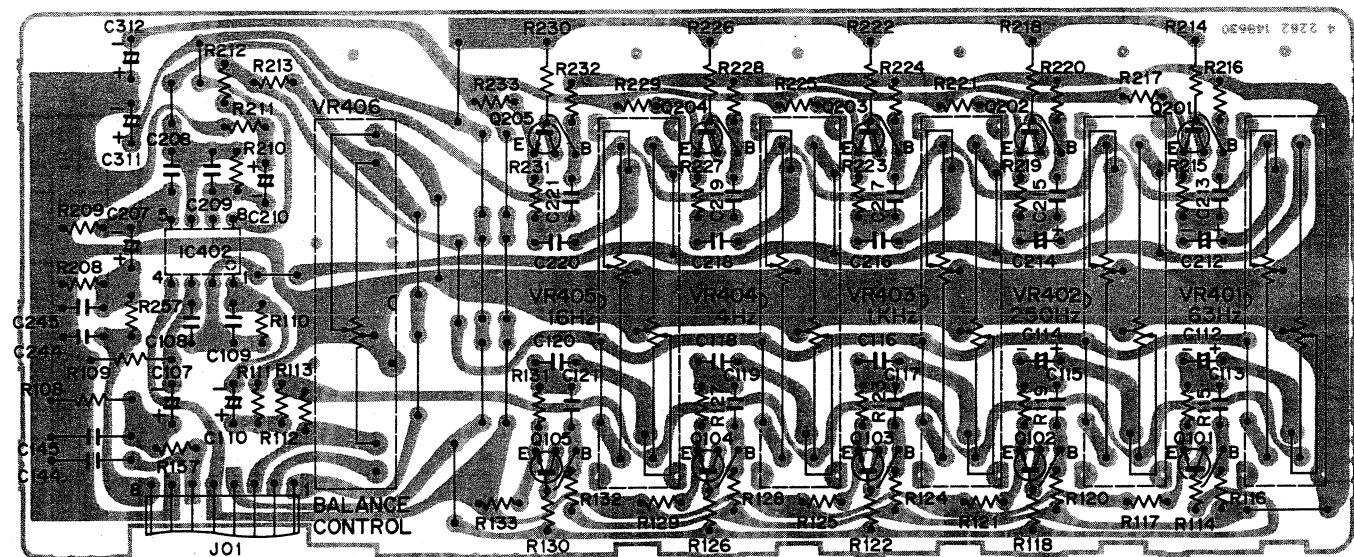
Ref. No.	Part No.	Description	Q'ty
RESISTORS			
R01	RD1-2-2251-JM000	Carbon 1.2kΩ 1/4W ±5%	1
R02	RD5-6-1251-JM000	Carbon 560Ω 1/4W ±5%	1
R03	RD3-3-1251-JM000	Carbon 330Ω 1/4W ±5%	1
R04	RH3-3-B102-JZ000	Metal 0.33Ω 1W ±5%	1
R05	RH3-3-B102-JZ000	Metal 0.33Ω 1W ±5%	1
R06	RF1-0-0251-JK000	Fuse 10Ω 1/4W ±5%	1

- NOTES:
- Parts order must contain Model Number, Part Number and Description.
 - Ordering quantity of screws and resistors must be multiple of 10 pcs.

PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol Δ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified with Δ, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

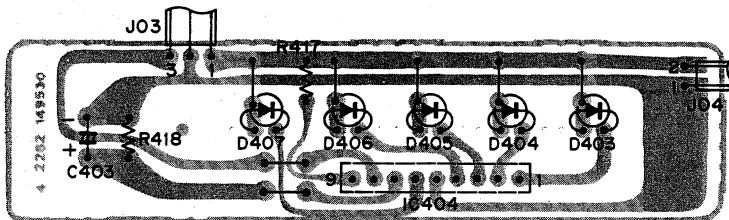
GRAPHIC EQUALIZER P.C.BOARD (BOTTOM VIEW)



IC PIN NUMBERS DC VOLTAGES									
SYMBOL No.	DEVICE	1	2	3	4	5	6	7	8
IC402	NJM 072	0V	0V	0V	-14.7V	0V	0V	0V	15.2V

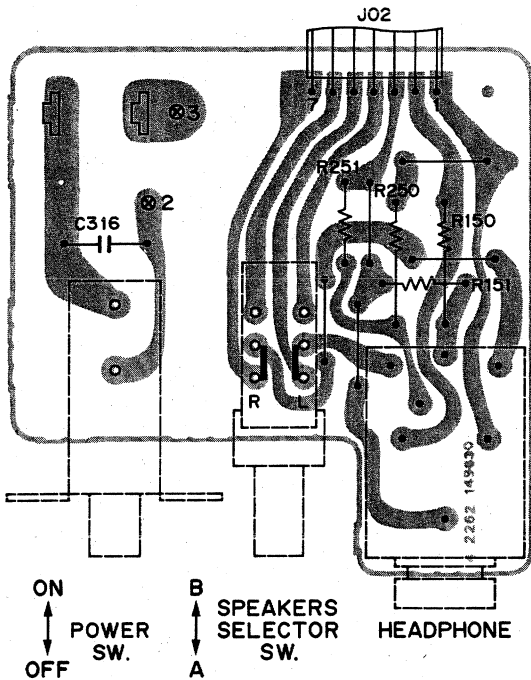
TRANSISTOR DC VOLTAGES									
SYMBOL No.	DEVICE	B	C	E	SYMBOL No.	DEVICE	B	C	E
Q101,201	2SC 536	-0.4V	14.9V	-1.0V	Q104,204	2SC 536	-0.3V	14.9V	-0.7V
Q102,202	2SC 536	-0.4V	14.9V	-1.0V	Q105,205	2SC 536	-0.3V	14.9V	-0.7V
Q103,203	2SC 536	-0.3V	14.9V	-0.7V					

LEVEL METER P.C.BOARD (BOTTOM VIEW)

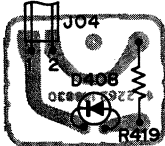
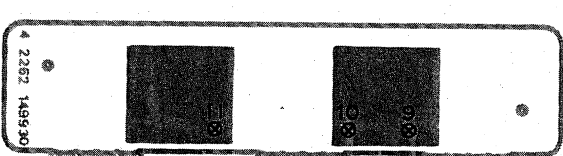


IC PIN NUMBERS DC VOLTAGES										
SYMBOL No.	DEVICE	1	2	3	4	5	6	7	8	9
IC404	LB 1423	13.7V	13.7V	13.7V	13.7V	0V	13.7V	-	-	12.4V

POWER SW. P.C.BOARD (BOTTOM VIEW)



VOLTAGE SW. P.C.BOARD POWER IND. P.C.BOARD (BOTTOM VIEW) (BOTTOM VIEW)



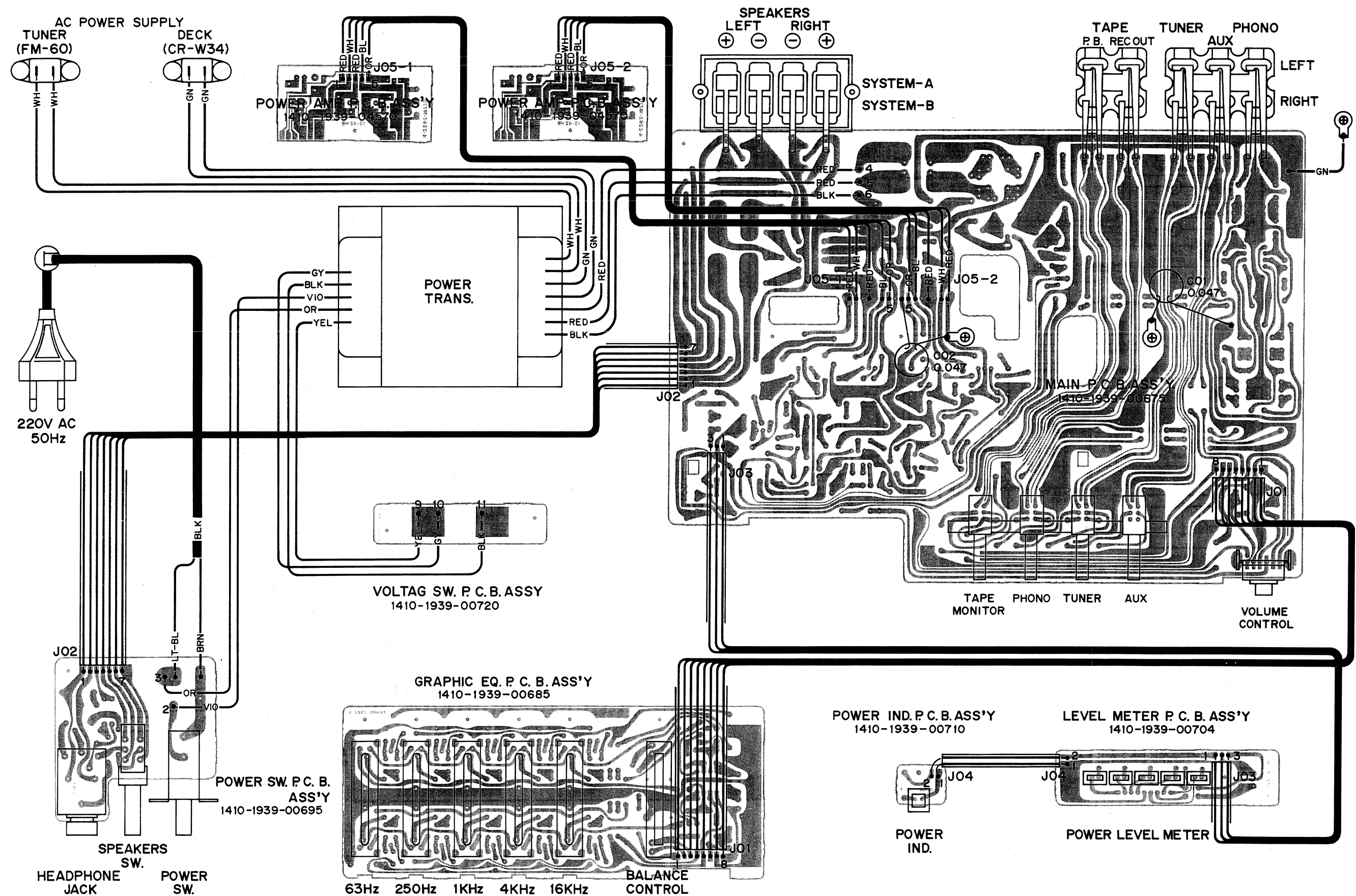
(BOTTOM VIEW)



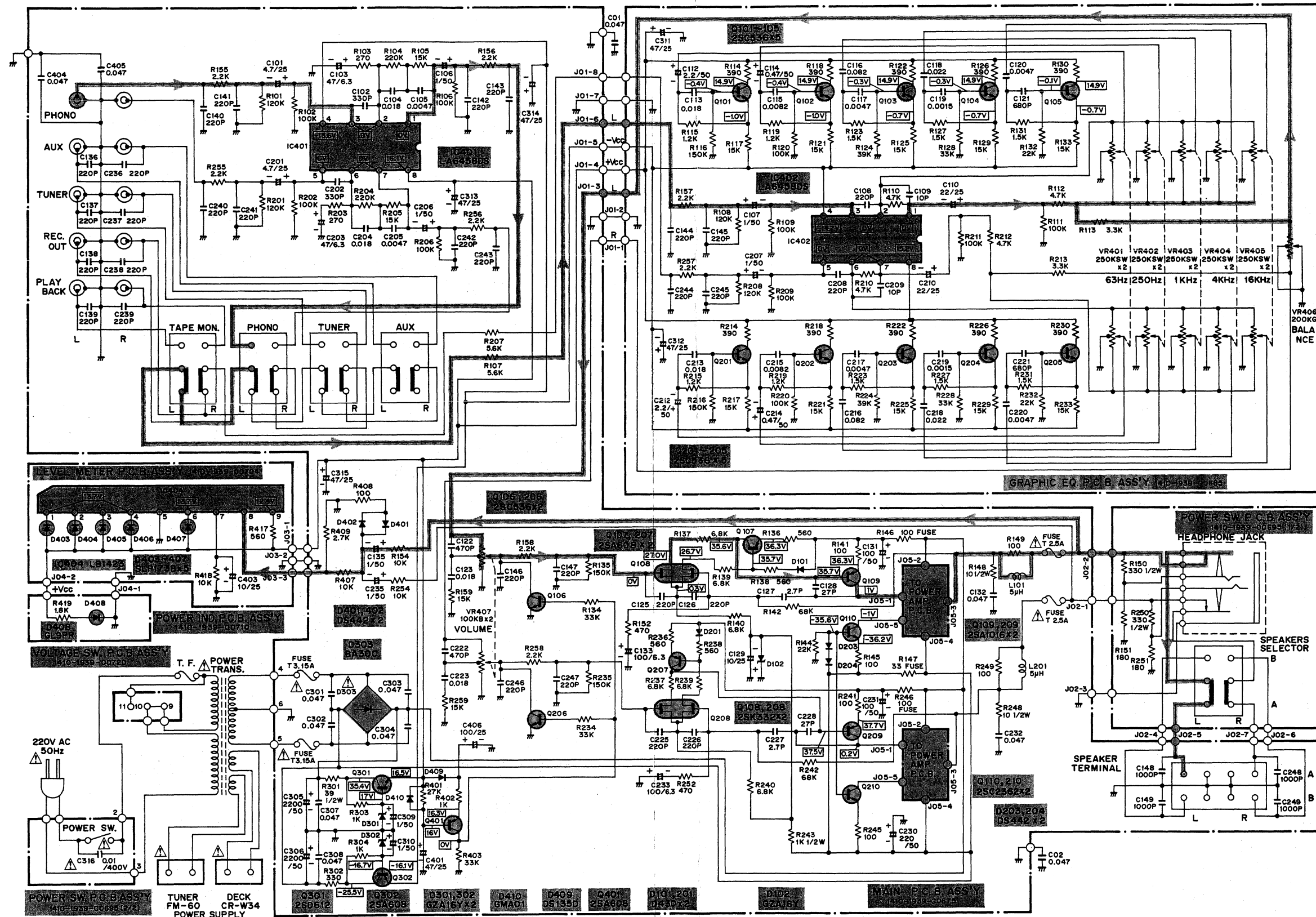
IC PIN NUMBERS DC VOLTAGES

TRANSISTOR DC VOLTAGES

POINT TO POINT WIRING DIAGRAM



SCHEMATIC DIAGRAM



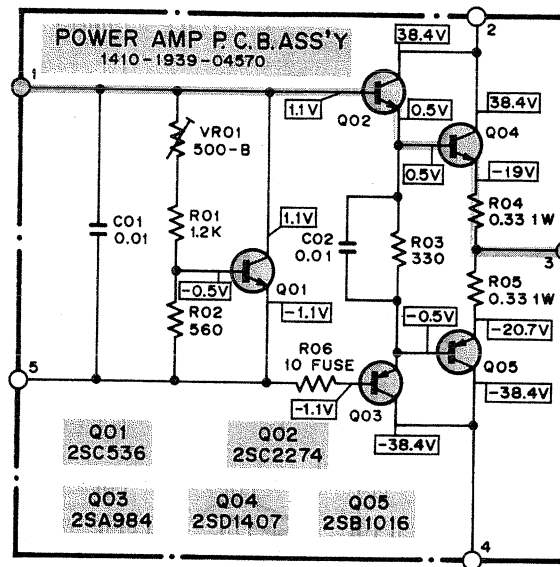
NOTES:

- All resistors values are indicated in "ohm" ($K=10^3$, $M=10^6$).
 - All capacitors values are indicated in " μF " ($P=10^{-12}$).
 - All voltages indicated on the schematics are measured under the following conditions.
 - Use a V.T.V.M.
 - All voltages $\pm 10\%$ with respect to chassis ground
 - This is a basic schematic diagram.
 - AC input at 220 volts 50 Hz
 - FUNCTION SW: AUX
 - Input Signal: 1kHz (Sine-wave)
 - Load Resistance: $8\ \Omega$
 - Output: $2.5\ W + 2.5\ W$ (4.47 V)
- Because Fisher products are subject to continuous improvement, Fisher Corporation reserves the right to make any changes or modifications without notice.

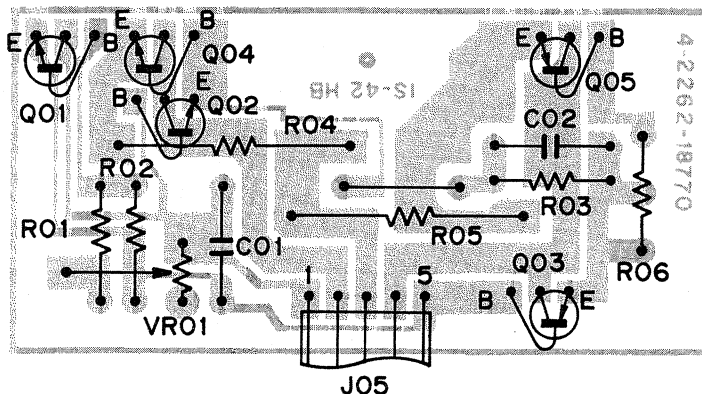
PRODUCT SAFETY NOTICE

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POWER AMPLIFIER SCHMATIC DIAGRAM



POWER AMPLIFIER P.C.BOARD (BOTTOM VIEW)



TRANSISTOR DC VOLTAGES				
SYMBOL No.	DEVICE	B	C	E
Q01	2SC 536	-0.5V	1.1V	-1.1V
Q02	2SC 2274	1.1V	38.4V	0.5V
Q03	2SA 984	-1.1V	-38.4V	-0.5V
Q04	2SD 1407	0.5V	38.4V	-19V
Q05	2SB 1016	-0.5V	-38.4V	-20.7V

POWER AMPLIFIER ADJUSTMENT

BEFORE ADJUSTMENT

1. After setting the power switch to the ON position, allow a few minutes before making adjustment, to be sure of the most stable operation.

IDLING CURRENT ADJUSTMENT

1. Set the SPEAKER Switch to OFF position.
2. Connect the DC Voltmeter to both ends of the R04 resistor of the Power Amplifier P.C.Board.
3. Adjust the VR01 so that the DC Voltmeter reading becomes 0.5mV – 3mV (1.5mA – 10mA).